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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/723,735

11/26/2003

Hengju Cheng

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9951

7590

05/06/2004

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EXAMINER

KIANNI, KAVEH C

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 05/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/723,735

Applicant(s)

CHENG ET AL.

Examiner

Kevin C Kianni

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-21 and 23 is/are rejected.
- 7) ☒ Claim(s) 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

- Acknowledgment is made of applicant's cancellation of claims 1-14 and 24-50 in preliminary amendment 11/26/2003.

Allowable Subject Matter

1. Claim 22 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 22 is allowable because the prior art of record, taken alone or in combination, fails to disclose or render obvious a set of metal traces deposited using photolithography techniques as a grid on said transparent film layer over said window section for use in suppressing EMI emissions in combination with the rest of the limitations of the base claim.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 15, 18-21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi (US 5,917,979).

Regarding claim 15, 18 and 20, Yamaguchi teaches a fiber optic communications module (shown at least in fig. 1; see abstract), comprising:

a set of optical fibers F supported in an optical ferrule 6 having a ferrule alignment structure 7(8);

an optoelectronic device 16;

and a carrier 2 including:

a) a silicon substrate carrier 2 alignment structure (shown in fig. 1-2, item 2 having alignment structure) adapted for cooperating with the ferrule alignment structure 7/8 of said optical ferrule 6 and aligning said carrier 2 with said optical ferrule 2,

b) a window section 9,

c) a film layer disposed on a surface of the carrier over said window section (see col. 10, lines 46-59; wherein the film is a SiO₂ film layer), and

d) an alignment mark 10A placed on said film layer SiO₂ (see col. 10, lines 47-59) and precisely aligned relative to the carrier alignment structure for positioning the optoelectronic 16/15 device (see col. 11, lines 28-36) and wherein

the an optoelectronic device 16 includes a set of photoactive components

15A/LDN/PDN corresponding to said set of optical fibers F in said optical ferrule 6 which is mounted on said film layer of said carrier 2 with reference to said alignment mark 9 over said window section 9 so as to be precisely aligned with said carrier alignment structure so that said photoactive components 15A/LDN/PDN are aligned for optical communication through said window section 9 with said set of

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optical fibers F when said carrier is coupled to said optical ferrule 6 (see fig. 1-2 and 5, item optoelectronic device 16 having active elements 15A/LDN/PDN aligned with respect to bumps 9 of Si carrier 2; see also col. 11, lines 28-36 and col. 13, lines 9-16). wherein said film layer is composed of a dielectric material deposited on said silicon substrate 2 (see col. 10, lines 46-59; wherein silicon dioxide is a dielectric material).

However, Yamaguchi does not specifically teach wherein the above film layer is transparent and that the above deposition of the film is implemented using lithography technique. Nevertheless Yamaguchi states that the above film layer is Silicon Dioxide SiO₂ and that photolithography technique is used in shaping the surface of the Si carrier (see col. 13, lines 6-9). Thus, it is well known to those of ordinary skill in the art when the invention was made that silicon dioxide SiO₂ is a transparent quartz/glass and that it would have been obvious to a person of ordinary skill in the art when the invention was made to use the well known technique of photolithography for forming the film layer, also admitted by the applicant in the specification page 14, lines 16-19, since such optical communication module would yield increase in positioning and optical transmission paths efficiently (see col. 4, lines 1-15).

Regarding claims 19, 21 and 23, Yamaguchi further teaches wherein said carrier comprises a silicon substrate 2, wherein said silicon substrate carrier 2 includes metal traces 10 for conducting signals and providing power to said optoelectronic device 16; wherein said alignment mark 10A comprises one or more metal traces 10 deposited on said film layer SiO₂ (see col. 10, lines 46-59; see analogous arguments regarding

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teachings of material deposition using photolithography techniques); wherein said photoactive components 15A/LDN/PDN are arranged in a first linear array (see fig. 5, items 15A), and wherein said set of optical fibers are arranged in a second linear array corresponding to said first linear array of photoactive components, and wherein and said module further includes a set of lenses disposed in a lens array for collecting and focusing light passing between said set of optical fibers and said photoactive components (see fig. 1-2, items fibers F, Si carrier 2, photoactive receiver 16 and microlens array 9, and see col. 12, lines 35-53).

4. Claims 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over combination of Yamaguchi and Williams (US 6641310).

Regarding claims claim 16-17, Yamaguchi teaches, as stated above, all limitations that these claims depend on. Yamaguchi further teaches wherein said photoactive components comprise laser diodes (see fig. 5, items LD_{1-N}) and photodiodes (see fig. 5, see items PD_{1-N}). However, Yamaguchi does not specifically teach wherein that above components are of vertical cavity surface-emitting laser type and PIN type photodiodes. These limitations are more specifically are taught by Williams (see col. 8, lines 6-11 and col. 12, lines 24-25). Thus, Williams provide an improved transceiver connection system (see col. 2, lines 58-60). Thus, it would have been obvious to a person of ordinary skill in the art when the invention was made to modify Yamaguchi's photoactive elements PDs and LDs with that of Yamaguchi's vertical cavity surface-emitting laser type and PIN type photodiodes in order to produce

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a an optical communication module that includes the above limitations, since such components are very conventional, and since the resultant optical device would yield increase in positioning and optical transmission paths efficiently (see col. 4, lines 1-15).

Citation of Relevant Prior Art

5. Prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In accordance with MPEP 707.05 the following references are pertinent in rejection of this application since they provide substantially the same information disclosure as this patent does. These references are:

Ogawa et al. 5536466 Teaches transparent film deposition on a substrate using photolithography

Isaksson et al. 6130979

Jiang et al. 6085007 Teaches VCSELs and PIN photodiodes in a FO alignment structure

These references are cited herein to show the relevance of the apparatus/methods taught within these references as prior art.

Contact Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Cyrus Kianni whose telephone number is (571) 272-2417.

The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 6:00 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font, can be reached at (571) 272-2415.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231


or faxed to:

(703) 872-9306 (for formal communications intended for entry)

or:

Hand delivered responses should be brought to Crystal Plaza 4, 2021 South Clark Place, Arlington, VA., Fourth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703) 308-0956.



K. Cyrus Kianni
Patent Examiner
Group Art Unit 2877

Frank Font
Supervisory Patent Examiner
Group Art Unit 2877

April 27, 2004